<u>IN THE CLAIMS</u>

The following is a complete list of the claims now pending. This listing replaces all earlier versions and listings of the claims.

Claim 1 (currently amended): A method of generating [[an]] <u>a pixel</u> image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object ~~having~~ <u>comprising</u> a predetermined outline, said method comprising:

a dividing step[[,]] of dividing a space in which the <u>predetermined</u> outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof, ~~wherein at least one~~ <u>each region outline being formed by</u> horizontal [[or]] <u>and</u> vertical ~~segment~~ <u>segments,</u> <u>the horizontal and vertical segments being</u> ~~of one or more of the region outlines is~~ selected from corresponding horizontal [[or]] <u>and</u> vertical segments of a virtual grid encompassing the space <u>such that at least one of the region outlines comprises at least one concavity</u>[[,]] depending on the predetermined outlines<u>, and the virtual grid comprising a plurality of cells, each cell comprising a plurality of pixels such that a spacing between the horizontal or vertical segments of the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid</u>;

a manipulation step[[,]] of manipulating the ~~regions~~ <u>region outlines</u> to determine a plurality of further regions, ~~at least one horizontal or vertical segment of one or more~~ <u>each</u> of the further regions being ~~selected from~~ <u>defined by</u> corresponding <u>ones of the selected</u> horizontal [[or]] <u>and</u> vertical segments of the virtual grid, ~~wherein~~ <u>and</u> each further region [[has]] <u>having</u> a corresponding compositing expression;

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a classification step[[,]] of[[,]] classifying the further regions determined in said manipulation step according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions;

a modification step[[,]] of modifying each corresponding compositing expression according to a classification of each further region determined in said manipulation step to form an optimized compositing expression for each further region compared to the corresponding compositing expression, the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications assigned in said classification step, while maintaining the image to be generated; and

a generation step[[,]] of generating the image by compositing the plurality of graphical objects using each of the optimized compositing expressions optimized in said modification step.

Claim 2 (currently amended): A method according to claim 1, wherein the attribute is selected in said classification step from [[the]] a group consisting of color, opacity and object outline.

Claim 3 (currently amended): A method according to claim 1, wherein [[said]] manipulating the regions comprises region outlines in said manipulating step includes applying set operations to the regions.

Claim 4 (previously presented): A method according to claim 3, wherein the set operations include difference and/or intersection operations.

Claim 5 (currently amended): A method according claim 1, wherein the <u>virtual</u> grid is regularly spaced ~~and preferably orthogonally based~~.

Claim 6 (currently amended): A method according to claim 1, wherein the <u>virtual</u> grid is irregularly ~~shaped~~ <u>spaced</u>.

Claim 7 (original): A method according to claim 1, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 8 (previously presented): A method according to claim 1, wherein the image is at least in part a pixel-based image.

Claim 9 (currently amended): A method according to claim 1, ~~wherein~~ <u>further comprising a step of storing</u> a flag ~~is stored~~ to indicate whether data of an object is opaque or ordinary.

Claim 10 (currently amended): A method according to claim 9, wherein <u>said modification step optimizes</u> the compositing expression ~~is optimized~~ based on a value of the flag for contributing objects.

Claim 11 (currently amended): A method according to claim 1, wherein said modification step operates such that a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 12 (currently amended): A method according to claim 1, wherein said modification step operates such that a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 13 (currently amended): A method according to claim 7, wherein said ~~modifying comprises modifying~~ modification step includes modifying in a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 14 (currently amended): A method of generating [[an]] a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object ~~having~~ comprising a predetermined outline, said method comprising:

a dividing step[[,]] of dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least [[one]] two region ~~outline~~ outlines substantially following at least one of the predetermined outlines or parts thereof, ~~wherein at least one~~ each region outline being formed by horizontal [[or]] and vertical ~~segment~~ segments, ~~of one or more of the region outlines is~~ said horizontal and vertical segments being selected from corresponding horizontal [[or] and vertical segments of a virtual grid

encompassing [[the]] a space such that at least one of the region outlines comprises at least one concavity[[,]] depending on the predetermined outlines, ~~wherein each object has~~ one of the two region outlines for a particular object being arranged on either side of the predetermined outline for the particular object such that ~~to thus define three regions for~~ each object comprises three corresponding regions, [[and]] wherein each region has a corresponding compositing expression and wherein the virtual grid comprises a plurality of cells, each cell comprising a plurality of pixels such that a spacing between adjacent horizontal or vertical segments or the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid;

a classification step[[,]] of classifying the regions according to at least one attribute of any one or more of the graphical objects which substantially fall within the regions;

a modification step[[,]] of modifying each corresponding compositing expression according to a classification of each region to form an optimized compositing expression for each region compared to the corresponding compositing expression, the corresponding compositing expressions being optimized by eliminating one or more objects within the regions from one or more of the corresponding expressions, depending on the classifications, while maintaining the image to be generated; and

a generation step[[,]] of generating the image by compositing the plurality of graphical objects using each of the ~~optimized~~ compositing expressions optimized in said modification step.

Claim 15 (currently amended): A method according to claim 14, wherein the attribute is selected in said classification step from [[the]] a group consisting of color, opacity and object outline.

Claim 16 (currently amended): A method according to claim 14, wherein the virtual grid is regularly spaced and preferably orthogonally based.

Claim 17 (currently amended): A method according to claim 14, wherein the virtual grid is irregularly shaped spaced.

Claim 18 (previously presented): A method according to claim 14, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 19 (previously presented): A method according to claim 14, wherein the image is at least in part a pixel-based image.

Claim 20 (currently amended): A method according to claim 14, wherein further comprising a step of storing a flag is stored to indicate whether data of an object is opaque or ordinary.

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Claim 21 (currently amended): A method according to claim 20, wherein said modification step optimizes the compositing expression is optimized based on a value of the flag for contributing objects.

Claim 22 (currently amended): A method according to claim 14, wherein said modification step operates such that a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 23 (currently amended): A method according to claim 14, wherein said modification step operates such that a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 24 (currently amended): A method according to claim 18, wherein said modifying comprises modification step includes modifying in a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 25 (currently amended): An apparatus for generating [[an]] a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object having comprising a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof, wherein

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~~at least one~~ each region outline being formed by horizontal [[or]] and vertical ~~segment of one or more of the region outlines is~~ segments, said horizontal and vertical segments being selected from corresponding horizontal [[or]] and vertical segments of a virtual grid encompassing the space such that at least one of the region outlines comprises at least one concavity[[,]] depending on [[said]] the predetermined outlines, the virtual grid comprising a plurality of cells, each cell comprising a plurality of pixels such that a spacing between adjacent horizontal or vertical segments of the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid;

> manipulating means for manipulating the ~~regions~~ region outlines to determine a plurality of further regions, ~~at least one horizontal or vertical segment of one or more~~ each of the further regions being ~~selected from~~ defined by corresponding ones of the selected horizontal [[or]] and vertical segments of the virtual grid, ~~wherein~~ each further region [[has]] having a corresponding compositing expression;

> classifying means for classifying the further regions determined by said manipulating means according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions;

> modifying means for modifying each corresponding compositing expression according to a classification of each further region determined by said manipulating means to form an optimized compositing expression for each further region compared to the corresponding compositing expression, the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the

corresponding expressions, depending on the classifications <u>assigned by said classifying means,</u> while maintaining the image to be generated; and

generating means for generating the image by compositing the plurality of graphical objects using each of the ~~optimized~~ compositing expressions <u>optimized by said</u> <u>modifying means</u>.

Claim 26 (currently amended): An apparatus according to claim 25, wherein the attribute is selected <u>by said classifying means</u> from [[the]] <u>a</u> group consisting of color, opacity and object outline.

Claim 27 (currently amended): An apparatus according to claim 25, wherein [[said]] manipulating the ~~regions comprises~~ <u>region outlines by said manipulating means</u> <u>includes</u> applying set operations to the regions.

Claim 28 (previously presented): An apparatus according to claim 27, wherein the set operations include difference and/or intersection operations.

Claim 29 (currently amended): An apparatus according to claim 25, wherein the <u>virtual</u> grid is regularly spaced and ~~preferably orthogonally based~~.

Claim 30 (currently amended): An apparatus according to claim 25, wherein the <u>virtual</u> grid is irregularly ~~shaped~~ <u>spaced</u>.

Claim 31 (previously presented): An apparatus according to claim 25, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 32 (previously presented): An apparatus according to claim 25, wherein the image is at least in part a pixel-based image.

Claim 33 (currently amended): An apparatus according to claim 25, ~~wherein~~ further comprising means for storing a flag ~~is stored~~ to indicate whether data of an object is opaque or ordinary,

Claim 34 (currently amended): An apparatus according to claim 33, wherein said modifying means optimizes the compositing expression ~~is optimized~~ based on a value of the flag for contributing objects.

Claim 35 (currently amended): An apparatus according to claim 25, wherein said modifying means functions such that a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 36 (currently amended): An apparatus according to claim 25, wherein said modifying means functions such that a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 37 (currently amended): An apparatus according to claim 31, wherein [[said]] the modifying by said modifying means comprises modifying in a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 38 (currently amended): An apparatus for generating [[an]] a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object having comprising a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least [[one]] two region outline outlines substantially following at least one of the predetermined outlines or parts thereof, wherein at least one each region outline being formed by horizontal [[or]] and vertical segment of one or more of the region outlines is segments, said horizontal and vertical segments being selected from corresponding horizontal [[or]] and vertical segments of a virtual grid encompassing [[the]] a space such that at least one of the region outlines comprises at least one concavity[[,]] depending on the predetermined outlines, wherein each object has one of the two region outlines for a particular object being arranged on either side of the predetermined outline for the particular object such that to thus define three regions for each object comprises three corresponding regions, [[and]] wherein each region has a corresponding compositing expression and wherein the virtual grid comprises a plurality of cells, each cell comprising a plurality of pixels such that a spacing between adjacent horizontal or vertical segments is greater than that between adjacent pixels of a corresponding pixel grid;

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classifying means for classifying the regions according to at least one

attribute of any one or more of the graphical objects which substantially fall within the regions;

modifying means for modifying each corresponding compositing

expression according to a classification of each region to form an optimized compositing

expression for each region compared to the corresponding compositing expression, the

corresponding compositing expressions being optimized by eliminating one or more objects

within the regions from one or more of the corresponding expressions, depending on the

classifications, while maintaining the image to be generated; and

generation means for generating the image by compositing the plurality

of graphical objects using each of the ~~optimized~~ compositing expressions <u>optimized by said</u>

<u>modifying means</u>.

Claim 39 (currently amended): An apparatus according to claim 38, wherein

the attribute is selected <u>by said classifying means</u> from [[the]] <u>a</u> group consisting of color, opacity

and object outline.

Claim 40 (currently amended): An apparatus according to claim 38, wherein

the <u>virtual</u> grid is regularly spaced ~~and preferably orthogonally based~~.

Claim 41 (currently amended): An apparatus according to claim 38, wherein

the <u>virtual</u> grid is irregularly ~~shaped~~ <u>spaced</u>.

Claim 42 (previously presented): An apparatus according to claim 38, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 43 (previously presented): An apparatus according to claim 38, wherein the image is at least in part a pixel-based image.

Claim 44 (currently amended): An apparatus according to claim 38, ~~wherein~~ further comprising means for storing a flag ~~is stored~~ to indicate whether data of an object is opaque or ordinary.

Claim 45 (currently amended): An apparatus according to claim 44, wherein said modifying means optimizes the compositing expression ~~is optimized~~ based on a value of the flag for contributing objects.

Claim 46 (currently amended): An apparatus according to claim 38, wherein said modifying means functions such that a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 47 (currently amended): An apparatus according to claim 38, wherein said modifying means functions such that a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 48 (currently amended): An apparatus according to claim 42, wherein the modifying by said modifying means comprises modifying in a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 49 (currently amended): A computer program product including a computer readable medium having a plurality of software modules for generating [[an]] a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object having comprising a predetermined outline, said computer program product comprising:

a dividing module for dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof, wherein at least one each region outline being formed by horizontal [[or]] and vertical segment of one or more of the region outlines is segments, the horizontal and vertical segments being selected from corresponding horizontal [[or]] and vertical segments of a virtual grid encompassing the space such that at least one of the region outlines comprises at least one concavity[[,]] depending on [[said]] the predetermined outlines, the virtual grid comprising a plurality of cells, each cell comprising a plurality of pixels such that a spacing between adjacent horizontal or vertical segments of the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid;

a manipulating module for manipulating the ~~regions~~ region outlines to determine a plurality of further regions, ~~at least one horizontal or vertical segment of one or more~~ each of the further regions being ~~selected from~~ defined by corresponding ones of the selected horizontal [[or]] and vertical segments of the virtual grid, ~~wherein~~ and each further region [[has]] having a corresponding compositing expression;

a classifying module for classifying the further regions determined by said manipulating module according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions;

a modifying module for modifying each corresponding compositing expression according to a classification of each further region determined by said manipulating module to form an optimized compositing expression for each further region compared to the corresponding compositing expression, the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications assigned by said classifying module, while maintaining the image to be generated; and

generating module for generating the image by compositing the plurality of graphical objects using each of the ~~optimized~~ compositing expressions optimized by said modifying module.

Claim 50 (currently amended): A computer program product according to claim 49, wherein the attribute is selected by said classifying means from [[the]] a group consisting of color, opacity and object outline.

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Claim 51 (currently amended): A computer program product according to claim 49, wherein [[said]] manipulating the ~~regions~~ region outlines by said manipulating module comprises applying set operations to the regions.

Claim 52 (previously presented): A computer program product according to claim 51, wherein the set operations include difference and/or intersection operations.

Claim 53 (currently amended): A computer program product according to claim 49, wherein the <u>virtual</u> grid is regularly spaced ~~and preferably orthogonally based~~.

Claim 54 (currently amended): A computer program product according to claim 49, wherein the <u>virtual</u> grid is irregularly ~~shaped~~ <u>spaced</u>.

Claim 55 (previously presented): A computer program product according to claim 49, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 56 (previously presented): A computer program product according to claim 49, wherein the image is at least in part a pixel-based image.

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Claim 57 (currently amended): A computer program product according to claim 49, ~~wherein~~ <u>further comprising a storing module for storing</u> a flag ~~is stored~~ to indicate whether data of an object is opaque or ordinary.

Claim 58 (currently amended): A computer program product according to claim 57, wherein <u>said modifying module optimizes</u> the compositing expression ~~is optimized~~ based on a value of the flag for contributing objects.

Claim 59 (currently amended): A computer program product according to claim 49, wherein <u>said modifying module is configured such that</u> a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 60 (currently amended): A computer program product according to claim 49, wherein <u>said modifying module is configured such that</u> a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 61 (currently amended): A computer program product according to claim 55, wherein [[said]] <u>the</u> modifying <u>performed by said modifying module</u> comprises modifying <u>in</u> a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 62 (currently amended): A computer program product including a computer readable medium having a plurality of software modules for generating [[an]] a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object having comprising a predetermined outline, said computer program product comprising:

a dividing module for dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least [[one]] two region outline outlines substantially following at least one of the predetermined outlines or parts thereof, wherein at least one each region outline being formed by horizontal [[or]] and vertical segment of one or more of the region outlines is segments, said horizontal and vertical segments being selected from corresponding horizontal [[or]] and vertical segments of a virtual grid encompassing [[the]] a space[[,]] such that at least one of the region outlines comprises at least once concavity depending on the predetermined outlines, wherein each object has one of the two region outlines for a particular object being arranged on either side of the predetermined outline for the particular object such that to thus define three regions for each object comprises three corresponding regions, and wherein each region has a corresponding compositing expression and wherein the virtual grid comprises a plurality of cells, each cell comprising a plurality of pixels such that a spacing between adjacent horizontal or vertical segments of the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid;

a classifying module for classifying the regions according to at least one attribute of any one or more of the graphical objects which substantially fall within the regions;

a modifying module for modifying each corresponding compositing expression according to a classification of each region to form an optimized compositing expression for each region compared to the corresponding compositing expression, the corresponding compositing expressions being optimized by eliminating one or more objects within the regions from one or more of the corresponding expressions, depending on the classifications, while maintaining the image to be generated; and

a generation module for generating the image by compositing the plurality of graphical objects using each of the ~~optimized~~ compositing expressions <u>optimized by said modifying module</u>.

Claim 63 (currently amended): A computer program product according to claim 62, wherein the attribute is selected <u>by said classifying module</u> from [[the]] <u>a</u> group consisting of color, opacity and object outline.

Claim 64 (currently amended): A computer program product according to claim 62, wherein the <u>virtual</u> grid is regularly spaced ~~and preferably orthogonally based~~.

Claim 65 (currently amended): A computer program product according to claim 62, wherein the <u>virtual</u> grid is irregularly ~~shaped~~ <u>spaced</u>.

Claim 66 (previously presented): A computer program product according to claim 62, wherein the compositing expression is a hierarchically structured representation of the image.

Claim 67 (previously presented): A computer program product according to claim 62, wherein the image is at least in part a pixel-based image,

Claim 68 (currently amended): A computer program product according to claim 62, ~~wherein~~ further comprising a storing module for storing a flag ~~is stored~~ to indicate whether data of an object is opaque or ordinary.

Claim 69 (currently amended): A computer program product according to claim 68, wherein said modifying module optimizes the compositing expression ~~is optimized~~ based on a value of the flag for contributing objects.

Claim 70 (currently amended): A computer program product according to claim 62, wherein said modifying module is configured such that a wholly opaque object in the region acts to eliminate one or more objects within the further region from the compositing expressions.

Claim 71 (currently amended): A computer program product according to claim 62, wherein said modifying module is configured such that a wholly transparent object in the region eliminates at least itself from the compositing expression.

Claim 72 (currently amended): A computer program product according to claim 66, wherein said modifying module comprises modifying in a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation.

Claim 73 (currently amended): A method according to claim 1, wherein one or more objects within the further regions are eliminated from one or more of the corresponding compositing expressions depending on the classifications determined in said classification step.

Claim 74 (currently amended): An apparatus according to claim 25, wherein said modifying means is configured to eliminate one or more objects within the further regions from one or more of the corresponding compositing expressions depending on the classifications determined by said classifying means.

Claim 75 (currently amended): A computer program product according to claim 49, wherein said modifying module is configured to eliminate one or more objects within the further regions from one or more of the corresponding compositing expressions depending on the classifications determined by said classifying module.

Claim 76 (canceled)

Claim 77 (new): A method of generating a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each object comprising a predetermined outline, said method comprising:

a dividing step of dividing a space in which the predetermined outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof, each region outline being formed by straight segments, the straight segments being selected from corresponding segments of a virtual grid encompassing the space such that at least one of the region outlines comprises at least one concavity depending on the predetermined outlines, the virtual grid comprising a plurality of cells, each cell comprising a plurality of pixels therewithin such that a spacing between adjacent segments of the virtual grid is greater than that between adjacent pixels of a corresponding pixel grid;

a manipulation step of manipulating the region outlines to determine a plurality of further regions, each of the further regions being defined by corresponding ones of the selected straight segments of the virtual grid and each further region having a corresponding compositing expression;

a classification step of classifying the further regions according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions;

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a modification step of modifying each corresponding compositing

expression according to a classification of each further region classified in said classification step

to form an optimized compositing expression for each further region compared to the

corresponding compositing expression, the corresponding compositing expressions being

optimized by eliminating one or more objects within the further regions from one or more of the

corresponding expressions, depending on the classifications, while maintaining the image to be

generated: and

a generation step of generating the image by compositing the plurality

of graphical objects using each of the compositing expressions optimized in said modification

step.